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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/832,822      | 04/12/2001  | Keiichi Sato         | Q64076              | 1928             |

7590                  04/01/2003

SUGHRUE, MION, ZINN,  
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Washington, DC 20037

EXAMINER

GOFF II, JOHN L

ART UNIT

PAPER NUMBER

1733

DATE MAILED: 04/01/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                          |                  |
|------------------------------|--------------------------|------------------|
| <b>Office Action Summary</b> | Application No.          | Applicant(s)     |
|                              | 09/832,822               | SATO, KEIICHI    |
|                              | Examiner<br>John L. Goff | Art Unit<br>1733 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 22 January 2003.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-3 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-3 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 21 April 2001 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
 If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
  - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)           | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . | 6) <input type="checkbox"/> Other: _____ .                                   |

**DETAILED ACTION**

1. This action is in response to Amendment A filed on 1/22/03. The rejections under 35 U.S.C. 112 second paragraph have been overcome. In view of applicant's arguments the rejections over McKague et al., Yokokita et al., McKague et al. in view of Yokokita et al., and Yokokita et al. in view of McKague et al. are withdrawn in favor of McKague et al. in view of Hiyamizu et al.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

***Claim Rejections - 35 USC § 103***

3. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over McKague et al. (U.S. Patent 5,954,898) in view of Hiyamizu et al. (JP 02030518, English language abstract of JP 02030518, and oral translation of JP 02030518).

McKague et al. are directed to a method of fabricating intermediate parts from composite materials (Column 1, lines 18-21 and Column 3, lines 1-21). McKague et al. teach fiber-reinforced composite preforms (sheets) comprising reinforcing fiber (graphite) impregnated with thermosetting resin (epoxy) (Column 3, lines 62-64 and Column 11, lines 15-18). McKague et al. teach a method for fabricating intermediate parts from the fiber-reinforced composite preforms comprising: a) stacking a plurality of the preforms (Figures 2 and 4 and Column 5, lines 26-29), laminating the stack under heat and pressure to form a composite laminate (Figures 2 and 4 and Column 5, lines 46-49, 52-53, and 62-64), and cooling the composite laminate to

room temperature (Column 6, lines 5-9); b) cutting the laminate into a pattern (Figures 2 and 4 and Column 6, lines 11-15); and c) heating the laminate to partially cure it, (Figures 2 and 4 and Column 6, lines 17-20 and 34-38) and reshaping the laminate using a cool press forming tool (Figures 2 and 4 and Column 6, lines 20-22). McKague et al. further teach using the partially cured, i.e. semi-hardened, intermediate parts to create other parts (Figures 4 and 10 and Column 7, lines 54-61). McKague et al. are silent as to forming the composite laminates (step a) through a continuous rather than batch process. One of ordinary skill in the art at the time the invention was made would have readily appreciated forming the composite laminates (step a) taught by McKague et al. using a continuous process as suggested by Hiyamizu et al. to reduce the time and handling involved to produce the laminates.

Hiyamizu et al. are directed to a process for producing parts from fiber-reinforced composite materials. Hiyamizu et al. teach fiber-reinforced prepreg materials comprising reinforcing fiber (carbon) impregnated with plastic resin (Oral translation see station 12 of the Figure). Hiyamizu et al. teach a continuous (automatic) process for forming the fiber-reinforced composite materials comprising: a) laminating a plurality of the prepreg materials to each other by contacting with a plurality of hot press rolls (Oral translation see rolls 19, 19a, 20, 20a, etc. of the Figure), i.e. heated under a pressure, followed by contacting with a cooling plate (Oral translation see 29 of the Figure), i.e. cooling under a pressure, to form a board-shaped laminate; and b) cutting the board-shaped laminate into a board (Oral translation see 38 of the Figure).

It is noted Hiyamizu et al. teach a cooling plate as the cooling means and not cold press rolls. It would have been well within the purview of one of ordinary skill in the art at the time the invention was made to use as the cooling means in the process taught by McKague et al. as

modified by Hiyamizu et al. cold press rolls as these rolls were well known cooling alternative in the art as shown for example by DellaVecchia et al. and only the expected results would be achieved, i.e. cooling the laminate.

DellaVecchia et al. (U.S. Patent 4,296,884) are directed to a stampable fiber reinforced thermoplastic sheet (Column 1, lines 5-9). DellaVecchia et al. teach a process for forming the stampable sheet comprising feeding layers of composite material (resin and fiber) to a laminating apparatus (Figure 1 and Column 2, lines 31-42), laminating the layers into a stampable sheet using heated press rolls (heating under pressure) followed by cooled press rolls (cooling under pressure) (Figure 1 and Column 3, lines 13-17 and 34-45), and cutting the laminated layers into stampable sheets (Figure 1 and Column 3, lines 43-45). DellaVecchia et al. further teach a stamping process comprising heating the stampable sheet followed by press forming the sheet (Figure 2 and Column 4, lines 37-45).

Regarding claim 2, as noted above McKague et al. teach the intermediate part is only partially cured, i.e. semi-hardened, such that the part can be used in further processing. Furthermore, one of ordinary skill in the art at the time the invention was made would have readily appreciated only partially hardening the part, e.g. to a degree of 1 to 50 %, when using a thermosetting resin that is to undergo further processing, e.g. molding, otherwise the part could not be processed further.

Regarding claim 3, McKague et al. are silent as to all possible operating conditions such as the heat and pressure. However, McKague et al. are not limited to any specific resin. One of ordinary skill in the art at the time the invention was made would have readily appreciated that the operating conditions to perform the method taught by McKague et al. as modified by

Hiyamizu et al. are a direct result of the specific resin used and to determine these conditions would be well within the ordinary skill of one in the art.

*Response to Arguments*

4. Applicant's arguments with respect to claims 1-3 have been considered but are moot in view of the new ground(s) of rejection. Applicant argues McKague et al. do not teach in step a) a continuous (automatic) process, heating press rolls, and cooling press rolls. These limitations are addressed above in paragraph 3. Applicant argues McKague et al. do not teach cooling under pressure in step c). The examiner notes applicants limitation of cooling under pressure is a press cooled to the broad range of 0-50 °C, and it is noted applicants claims do not require active cooling. The press taught by McKague et al. is neither heated nor cooled, i.e. one would expect the press to have a temperature of about 20-25 °C (room temperature). Thus, the limitation of cooling under pressure is met by McKague et al.

*Conclusion*

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **703-305-7481**. The examiner can normally be reached on M-Th (8 - 5) and alternate Fridays.

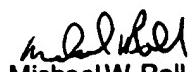
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on 703-308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



John L. Goff  
March 26, 2003



Michael W. Ball  
Supervisory Patent Examiner  
Technology Center 1700